

THE Description AND USES OF A New and Correct SEA-CHART OF the Western and Southern OCEAN.

Shewing the Variations of the Compaſs.

THE Projection of this Chart is what is commonly called *Mercator's*; but from its particular Use in Navigation, ought rather to be named the *Nautical*; as being the only true and sufficient CHART for the Sea. It is supposed, that all such as take Charge of Ships in long Voyages, are so far acquainted with its Use, as not to need any Directions here. I shall only take the Liberty to assure the Reader, that having taken all possible Care, as well from Astronomical Observations, as Journals, to ascertain the Situation and Form of this Chart, as to its principal Parts, and the Dimensions of the several Oceans; he is not to expect that we should defend to all the Particularities necessary for the Coaster, our Scale not permitting it. What is here properly new, is the *Curve-Lines* drawn over the several Seas, to shew the Degrees of the Variation of the *Magnetical Needle*, or *Sea Compaſs*: which are design'd according to what I myself found in the *Western and Southern Oceans*, in a Voyage I purposely made at the Publick Charge in the Year of our Lord 1700.

That this may be the better understood, the curious Mariner is desired to observe, that in this Chart the Double Line passing near *Bermudas*, the *Cape Verde* Isles, and *Saint Helena* every where divides the *East* and *West* Variation in this Ocean, and that on the whole Coast of *Europe* and *Africa* the Variation is *Westerly*, as on the more Northerly Coasts of *America*, but on the more Southerly Parts of *America* 'tis *Easterly*. The Degrees of Variation, or how much the Compaſs declines from the true North on either Side is reckoned by the Number of the Lines on each side the double Curve, which I call the *Line of No Variation*; on each fifth and tenth is distinguished in its Stroke, and numbered accordingly, so that in what Place soever your Ship is, you find the Variation by Inspection.

That this may be the fuller understood, take these Examples. At *Madera* the Variation is 30^d. West; at *Barbados* 5^d. East; at *Annabon* 7^d. West; at *Cape Race* in *Newfoundland* 14^d. West; at the Mouth of *Rio de Plata* 13^d. East. &c. And this may suffice by Way of Description.

As to the Uses of this Chart, they will easily be understood, especially by such as are acquainted with the *Azimuth Compaſs*, to be, to correct the Course of Ships at Sea: For if the Variation of the Compaſs be not allowed, all Reckonings must be so far erroneous: And in continued Cloudy Weather, or where the Mariner is not provided to observe



this Variation duly, the Chart will readily shew him what Allowances he must make for this Defect of his Compaſs, and thereby rectify his Journal.

But this Correction of the Course is in no case so necessary as in running down on a Parallel East or West to hit a Port: For if being in your Latitude at the Distance of 70 or 80 Leagues, you allow not the Variation, but steer East or West by Compaſs, you shall fall to the Northwards or Southwards of your Port, on each 10 Leagues of Distance, one Mile for each Degree of Variation, which may produce very dangerous Errors, where the Variation is considerable; for Instance, having a good Observation in Latitude 45^d. 40^m. about 80 Leag. without *Sailly*, and not considering that there is 8 Degrees West Variation, I steer away East by Compaſs for the Channel; but making my way truly E. 8 d. N. when I come up with *Sailly*, instead of being 3 or 4 Leagues to the South thereof, I shall find my self as much to the Northward: And this Evil will be more or less according to the Distance you fail in the Parallel. The Rule to apply it is, That to keep your Parallel truly, you go so many Degrees to the Southward of the East, and Northward of the West, as in the West Variation; but contrariwise, so many Degrees to the Northwards of the East, and Southwards of the West, as there is East Variation.

A further Use is in many Cases to estimate the Longitude at Sea thereby; for where the Curves run nearly North and South, and are thick together, as about *Cape Bona Esperance*, it gives a very good Indication of the Distance of the Land to Ships come from far; for there the Variation alters a Degree to each two Degrees of Longitude nearly; as may be seen in the Chart. But in this Western Ocean, between *Europe* and the *North America*, the Curves lying nearly East and West, cannot be Serviceable for this Purpose.

This Chart as, as I said, was made by Observation of the Year 1700, but it must be noted, that there is a perpetual, tho' slow Change in the Variation almost every where, which will make it necessary in time to alter the whole System: at present it may suffice to advertise that about *C. Bonne Esperance*, the West Variation encreases at the Rate of about a Degree in 6 Years. In our Channel it encreases a Degree in seven Years, but slower the nearer the Equinoctial Line; as on the *Guiney Coast* a Degree in 11 or 12 Years. On the *American side* the West Variation alters but little; and the East Variation on the *Southern America* decreases, the more Southerly the faster; the Line of No Variation moving gradually towards it.

I shall need to say no more about it, but let it commend itself, and all knowing Mariners are desired to lend their Assistance and Informations, towards the perfecting of this useful Work. And if by undoubted Observations it be found in any Part defective, the Notes of it will be received with all grateful Acknowledgement, and the Chart corrected accordingly.

E. HALLEY.

This CHART is to be sold by T. Page, and W. Mount, at the Postern on Tower-Hill.